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ABSTRACT

Despite the adoption of special state funding formulas that address the needs of small schools, Utah educators have continued to observe an imbalance in academic performance between rural and urban students. This report examines: academic achievement in Utah's small schools; factors related to school size that may influence academic achievement; and the ability of small schools to implement new State Board of Education policies on instructional programs and graduation requirements. Information was drawn from: the 1984 Utah Statewide Educational Assessment Program; American College Testing Program (ACT) results; a 1984 survey of about 15,000 Utah high school seniors; and a survey of principals in the state's 25 smallest high schools. Compared to students from larger schools, students in small rural high schools: (1) performed at lower levels on basic skills, particularly reading comprehension and math computation; (2) scored lower in noncognitive areas such as academic self-concept, peer relations, and career awareness; (3) had significantly lower ACT scores; (4) had lower socioeconomic status; (5) took fewer classes in intermediate and advanced mathematics; (6) had higher levels of participation in extra-curricular activities; and (7) reported greater enjoyment of school. Most small school teachers carried an excessive daily preparation load, and many taught classes they were not academically prepared to teach. With regard to new state requirements, most small schools will be able to provide sufficient course offerings to meet minimum graduation requirements, but will be limited in their offerings of advanced college preparatory courses and specialized vocational training programs. (SV)

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Small Schools in Utah

a status report

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APRIL
1985

UTAH
STATE
OFFICE
OF
EDUCATION

SMALL HIGH SCHOOLS IN UTAH:
A STATUS REPORT

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April, 1985

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Finally, we wish to acknowledge the largely unheralded work of the many rural educators who carry an extremely difficult load. In spite of the limitations under which they labor, these educators repeatedly demonstrate the kind of dedication, effort, and caring which has been the hallmark of education in rural Utah.

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INTRODUCTION

Utah citizens have traditionally placed a very high value on education and on equal educational opportunity for their children. As a result, Utah has pioneered efforts to equalize state funding for education, and has adopted special formulas to address the needs of necessarily-existent small schools. While these formulas have not kept up with all the costs entailed in providing an adequate education to students in sparsely-populated, geographically large and isolated areas, they clearly represent the commitment of Utah's educational policy makers to the concept of equal educational opportunity regardless of location.

Thus, it has been with considerable concern that educators have observed the imbalance in academic performance between students in urban and rural settings. Desiring to better understand the factors affecting this discrepancy in student performance on standardized measures, last July the State Board of Education commissioned its staff to examine this matter further and report at a later time. As a result, the staff's report addresses the following areas: (1) the current status of academic performance in small schools, (2) factors related to school size which may influence academic performance, and (3) the ability of small schools to implement new Board policies regarding programs of study and high school graduation requirements.

In developing this report, the staff examined a variety of information sources in order to gain a balanced view of the range of factors influencing school achievement in Utah's smallest schools. Overall, the staff have found a genuine commitment on the part of teachers and administrators of small schools to provide the best possible educational offerings, often in the face of formidable odds. It is the staff's belief that some of the factors

affecting performance fall outside the scope of Board action. Nevertheless, Board support for continued experimentation with new ways of delivering educational services, along with the commitment of significant financial and technical resources will be needed to assist small schools in fulfilling the promise of equal educational opportunity for all of Utah's children.

SOURCES OF INFORMATION

This report draws upon several different independent sources of information in order to provide relevant results describing the characteristics of small high schools on several key dimensions. A brief description of each of the major sources of information used in this report follows:

Utah Statewide Educational Assessment Program. Results from the 1984 Utah Statewide Educational Assessment involving 30 high schools of various sizes across the State of Utah are included. These findings feature results from the achievement tests administered as part of the State Assessment in the areas of reading, language expression, and mathematics.

American College Testing Program (ACT) Results. Another source of academic information available for this report was the 1984 results from the American College Testing Program. These results are based on the test scores of over 14,000 Utah high school juniors and seniors who took the ACT in 1984.

Intentions and Accomplishments of Utah High School Seniors. Results from the Spring 1984 Survey of the Intentions and Accomplishments of Utah High School Seniors are reported as they relate to course-taking patterns of students in high schools of various sizes. This study included approximately 15,000 Utah high school seniors who graduated in the spring of 1984.

Survey of Principals of Small Utah High Schools. This source of information was gathered through a survey of high school principals in the state's 25 smallest high schools. Information pertaining to numerous small school issues was obtained through interviews conducted over a three-week period using a special interview schedule developed by staff of the State Office of Education. Survey items dealt with such diverse matters as teaching loads, extra-curricular activities, and the ability of small schools to meet the state's new graduation requirements.

FINDINGS: SECTION I

ACADEMIC PERFORMANCE OF UTAH STUDENTS IN SMALL HIGH SCHOOLS

The performance of Utah high school students enrolled in the state's small rural schools has been a source of concern for several years. Sources of assessment information, such as the American College Testing Program and Utah's Statewide Educational Assessment Program, have rather consistently documented lower scores for students in the state's smaller schools than those observed for larger schools. This section will describe the most recent available information concerning such differences from the ACT Program and the State Assessment Program.

Statewide Educational Assessment Results

The Utah Statewide Assessment Program includes school size as one of the considerations used in selecting a sample of high schools across the state. The State Assessment classification system divides high schools into three groups including the following categories: small (less than 350 students), medium (350-999), and large (1000+). In 1984 some 2,614 eleventh grade students were tested as part of the State Assessment Program in all sizes of schools.

Table 1 shows reading, language expression and mathematics scores for students in Utah high schools classified as small, medium and large. Differences among the various sizes of schools are not pronounced for the reading or language scores. Students in the largest schools do score somewhat higher than other students in reading comprehension. In the area of mathematics computation, students in the largest schools perform significantly better than their counterparts in small and medium schools and somewhat better in math concepts. Thus, in examining performance on rather fundamental, basic

TABLE 1

Comprehensive Tests of Basic Skills Median Percentile Rank Scores
For Students in High Schools of Different Sizes
Grade 11 - 1984

(Total Schools = 30; Total Students = 2,614)

Score	Size of High School		
	Small (less than 350)	Medium (350 - 999)	Large (1000 plus)
Reading Vocabulary	54th	54th	54th
Reading Comprehension	54th	52nd	58th
Language Expression	63rd	60th	60th
Math Computation	50th	50th	60th
Math Concepts	55th	55th	57th

Source: 1984 Utah Statewide Educational Assessment

skills tests, while some differences are observed in favor of students in larger schools, such differences are typically not of a very large magnitude.

In addition to the achievement testing, which is accomplished as part of the State Assessment Program, various other measures of student attitudes and activities are also gathered as part of this program. An examination of the latter score areas for schools of different sizes shows a rather interesting pattern. Students in the state's largest schools tend to perform better than those in the smallest schools in such areas as academic self-concept, peer relations, independent development, career awareness, and career development experience. Interestingly, students from the smaller schools report much higher levels of participation in extra-curricular activities, and also score higher on the enjoyment of school measure.

Thus, the overall pattern of findings from State Assessment would suggest a rather consistent profile of differences on both academic and non-cognitive outcome measures in which students from the state's smaller rural high schools score lower than students in larger schools.

American College Testing Program Results

Another source of information on academic performance of students from schools of various sizes in the American College Testing Program. The ACT measures much more advanced content than is true of test like those used in the State Assessment Program. The reason for this is that the ACT is used primarily as a college entrance exam and is intended for students who have taken a college preparatory curriculum.

Table 2 presents the average ACT standard score in all areas of the test for students in high school graduating classes of different sizes. Both the Utah and national averages are profiled in the table for each test of the ACT. The trend of averages is very clear in Table 2. In every instance,

TABLE 2

Utah and National ACT Mean Scores for High School
Graduating Classes of Various Sizes - 1984

Size of Graduating Class	English		Math		Social Studies		Natural Science		Composite	
	Utah	Natl.	Utah	Natl.	Utah	Natl.	Utah	Natl.	Utah	Natl.
1 - 24	16.5	17.2	14.4	15.0	15.8	15.8	20.0	20.0	16.8	17.1
25 - 99	17.0	17.7	15.4	16.0	15.9	16.4	20.3	20.4	17.3	17.7
100 - 199	17.3	17.8	15.5	16.6	16.5	16.8	20.5	20.7	17.6	18.1
200 - 399	18.5	18.2	17.4	17.6	18.1	17.4	21.6	21.1	19.0	18.7
400 & More	18.8	18.4	18.0	18.5	18.5	17.9	21.8	21.6	19.4	19.3
OVERALL	18.3	18.1	17.1	17.3	17.8	17.3	21.4	21.0	18.7	18.5

Note: Averages are based on ACT standard scores which range from a low of 1 to a high of 36

students from smaller graduating classes perform at much lower levels than students in the largest graduating classes. The mathematics area shows the most pronounced differences observed in the table. Students from the smallest graduating classes, (1-24) have an average mathematics score of only 14.4. While students in the largest graduating classes (400+) have an average of 18.0. It is also noteworthy that, with the exception of the mathematics score, Utah students in the largest graduating classes outperform students nationally in such classes. In the smallest graduating classes, however, Utah students tend to score lower than students nationally.

Clearly, these ACT results demonstrate a much more profound difference between small and large schools than was observed on the State Assessment Achievement Test results. The basic difference between these two tests is the level of difficulty of the content measured. Whereas the CTBS is built to measure basic skills, the ACT goes far beyond basic skills and is sensitive to advanced classes in such areas as mathematics and science. All of this tends to suggest that, while students in smaller schools have a slight disadvantage compared to students from larger schools on basic skills measures, these differences are magnified when more difficult content is examined.

FINDINGS: SECTION II

FACTORS RELATED TO SCHOOL SIZE WHICH MAY INFLUENCE ACADEMIC PERFORMANCE

This section will discuss a variety of factors which may be explanatory of the differences in observed student performance for schools of different sizes reported in the previous section. The factors to be discussed range from considerations such as the specific courses taken by students, to an analysis of the characteristics of faculties and the course loads carried by teachers in small high schools.

Specific Courses and Programs of Study

This section will explore the types of courses taken by students in schools of different sizes and some related issues. Table 3 presents an analysis of the courses taken by students in Utah high schools of four different sizes. This framework of school size was obtained by dividing Utah's 99 high schools into four roughly equal groups. These results are taken from the regular survey of the Intentions and Accomplishments of Utah High School Seniors and represents the responses of some 15,000 of Utah high school seniors who graduated in the Spring of 1984. An examination of this table shows that students in the state's smallest high schools (with enrollments of less than 250) tend to take far fewer mathematics courses than students in larger schools. This is true uniformly of both Algebra I and II, Geometry, Trigonometry, and Calculus. In some instances the results are dramatic. An example of this kind of difference is Geometry, where only 30% of the students in the smallest high schools have taken the course compared to over 50% in the largest schools. In the area of science, results are much less clear, but show slightly higher percentages of students in the small schools taking courses such as Physics, Chemistry and Computer Science. The

TABLE 3

Percentages of Utah High School Seniors in High Schools of Different Sizes Who Have Taken Specific Classes - 1984

Course	Size of High School			
	Smallest (less than 250)	Medium Small (251-700)	Medium Large (701-1300)	Largest (1300 plus)
Algebra I	74%	76%	80%	80%
Algebra II	39%	39%	50%	50%
Geometry	30%	41%	50%	51%
Trigonometry	18%	17%	26%	26%
Calculus	6%	5%	9%	9%
Applied Math	54%	44%	25%	23%
Physics	20%	14%	13%	13%
Chemistry	27%	30%	29%	23%
Computer Science	40%	32%	28%	27%
AP/Honors American History	13%	17%	16%	16%
AP/Honors English	17%	24%	22%	20%
AP/Honors Mathematics	11%	9%	11%	10%
AP/Honors Biology	10%	9%	7%	7%
AP/Honors Chemistry	2%	3%	4%	3%

Source: Intentions and Accomplishments of Utah High School Seniors, Spring, 1984, Utah State Office of Education

percentages in students enrolled in AP/Honors Courses also tends to be somewhat higher for students in larger schools, but the differences are not nearly as great as those observed in the mathematics course-taking results discussed above.

The substantial differences in the course taking patterns in the mathematics area is clearly reflected in the achievement of students. Table 4 shows the average national percentile rank scores of students who have taken and have not taken first and second year Algebra and Geometry. While it would be incorrect to conclude that simply taking these classes causes such higher scores, clearly the content of these classes has a significant influence on the achievement of students on almost any standardized mathematics test. Thus, the consequences of students in smaller schools not taking as many higher level mathematics courses would seem to be of considerable importance and directly related to academic performance.

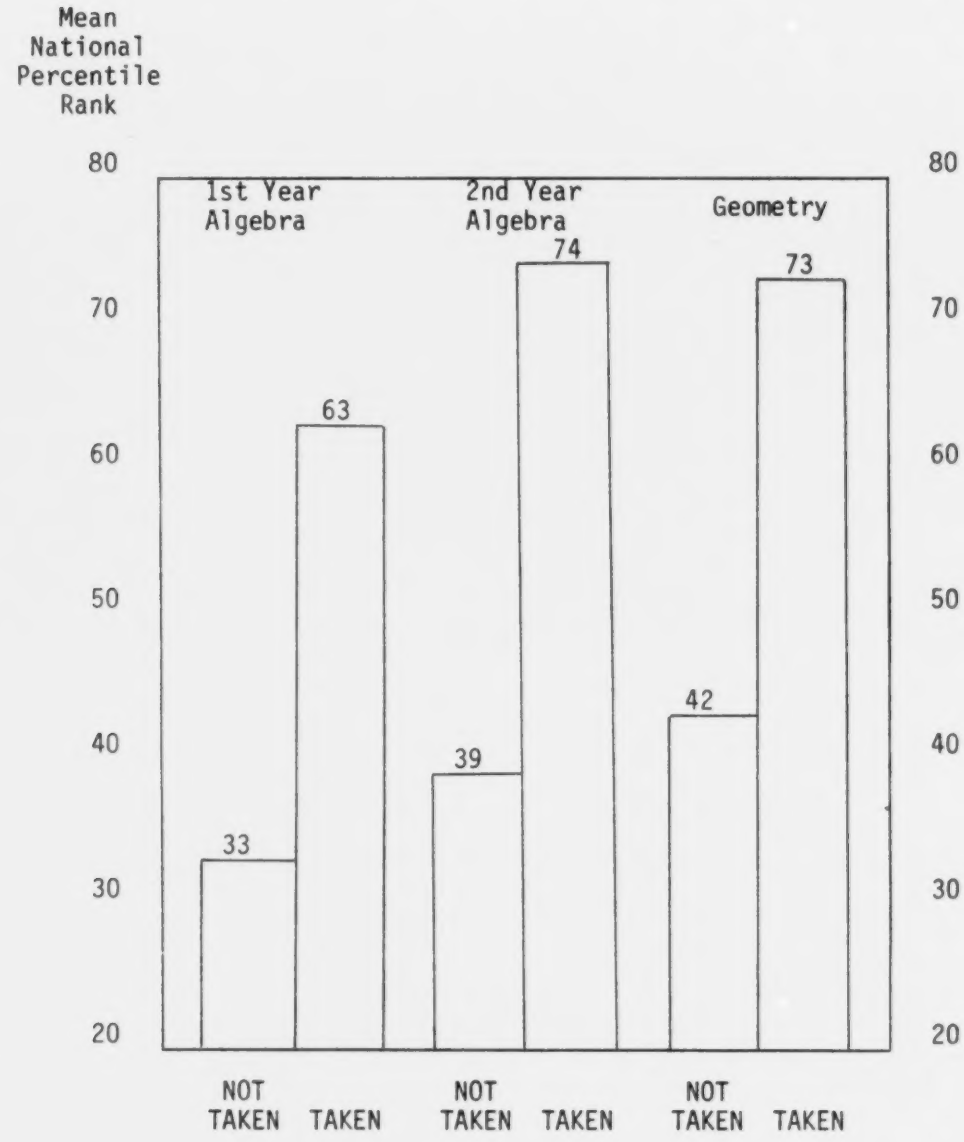
Table 5 presents yet another picture of the difference in programs of study of students in schools of different sizes. This table presents the percentage of students enrolled in each of four high school curricula. Perhaps the most remarkable aspect of these results is the difference in the percentage of students who classify themselves as being a "general" curriculum. The figure is 37% for students in the state's largest high schools compared to a figure of 58% for students in the smallest schools. This difference is reflected in the percentages of students who fall into the other three categories and suggests that students in the smallest schools may have a much less focused program of studies than is true of other students.

Teachers Teaching in Areas of Academic Preparation

Results reported in this section are based on interviews with the principals of Utah's 25 smallest high schools. To gather information on this

Table 4

Results on CTBS Mathematics Total Score For Students Who Have Taken Vs. Have Not Taken Specific Mathematics Courses, Grade 11



	NOT TAKEN	TAKEN	NOT TAKEN	TAKEN	NOT TAKEN	TAKEN
MEAN RAW SCORE	42.8	64.1	49.2	69.8	51.9	69.2

TABLE 5

Percentages of Utah High School Seniors in Schools of Different Sizes Who Describe Their High School Curriculum In Various Ways - 1984

Reported High School Curriculum	Size of High School			
	Smallest (less than 250)	Medium Small (251-700)	Medium Large (701-1300)	Largest (1300 plus)
College Preparatory	20%	30%	37%	37%
Vocational - Technical	11%	12%	13%	12%
Vocational - Business	11%	12%	13%	14%
General	58%	45%	37%	37%

Source: Intentions and Accomplishments of Utah High School Seniors, Spring 1984, Utah State Office of Education

subject, principals were asked to list all their faculty members (without identifying them personally) and report the total number of daily preparations required of each staff member in areas where they had no academic major or minor. The results are presented in Tables 6 and 7.

When the data are aggregated, it appears that small schools do not fare too badly in terms of having teachers teaching in areas outside their academic preparation. According to the survey respondents, 69% of all small school teachers are teaching exclusively in areas where they have an academic major, minor, or equivalent. Assuming that the average small school is on a six-period-per-day schedule, only 8.1% of teachers are teaching three or more classes (half of the day) in areas in which they lack formal academic preparation.

However, when a school-by-school analysis is made (see Table 7) it becomes clear that, especially for the smallest schools, the problem of staff teaching classes in areas outside their academic preparation can be significant.

In all the 25 reporting schools, at least one faculty member is teaching in areas outside his or her academic training. As a general observation, it appears that the smaller the school, the greater the percentage of teachers without adequate academic preparation for their teaching assignment. In all, 13 out of the 25 schools surveyed have one-third or more of their faculties teaching in subjects for which they are not prepared academically with a major or minor.

Teacher Preparations and Extra-Curricular Assignments

Results reported in this section are also based on the survey of 25 principals of small Utah high schools. A recurring area of concern is the number of teachers required to do multiple daily preparations as well as

TABLE 6

Number of Daily Preparations by Teachers Without Academic Majors or Minors in the Area

Number of Daily Preparations (No Major/Minor)	Percentage of Teachers
0	69.0%
1	14.1%
2	8.8%
3 or More	8.1%

TABLE 7

School by School Analysis of Teachers Teaching One or More Classes Without Adequate Academic Preparation

School	Number of Total Faculty Members in School	Number of Teachers Teaching One or More Classes Without Major or Minor in Area	Percentage of Teachers Teaching One or More Classes Without Major or Minor in Area
A	9	3	33%
B	13	3	23%
C	11	4	36%
D	15	4	27%
E	8	3	38%
F	10	3	30%
G	10	4	40%
H	10	7	70%
I	8	3	38%
J	3	3	100%
K	17	3	18%
L	10	5	50%
M	13	3	23%
N	14	6	43%
O	7	3	43%
P	9	2	22%
Q	20	3	15%
R	15	2	13%
S	15	1	7%
T	11	3	27%
U	3	3	100%
V	14	5	36%
W	12	3	25%
X	10	7	70%
Y	14	1	7%

carry extra-curricular assignments. Tables 8 and 9 present results relevant to this question.

Results reported in Table 8 suggest that the number of daily teacher preparations which small school staff members must make is often excessive. A substantial number of teachers in small schools (63.1%) are carrying very high preparation loads (more than four daily preparations). Conventional wisdom in education suggests that more than four preparations becomes a substantial negative influence on a teacher's ability to discharge effectively his or her responsibilities. If these results are correct, a majority of small school teachers may be handicapped by the demands of "making do" because of small numbers of teachers on a staff and, therefore, large numbers of preparations per teacher.

To compound the problem of having teachers overburdened by daily preparations one can add the responsibility of carrying extra-curricular assignments. Table 9 documents this area. Although one out of every five teachers in small schools does not have an extra-curricular assignment, nearly 30% of the faculty members in small schools carry three or more assignments in addition to their teaching load.

Interruptions Resulting From Extra-Curricular Involvement

The 25 principals from Utah's smallest high schools were also asked to comment on the extent to which several items dealing with involvement in extra-curricular activities negatively affected student achievement at their schools. The findings are reported in Table 10.

By an overwhelming margin (92%), respondents appear convinced that the amount of travel time required for student activities moderately or seriously affects student achievement at their schools. Interruptions of the school day were also seen as a significant problem, with 52% of respondents labeling it as a "serious" problem. However, although travel and interruptions of the

TABLE 8

Number of Daily Preparations Made By Teachers'
in Utah's 25 smallest Schools

Number of Daily Preparations	Percentage of Teachers
1	6.4%
2	6.0%
3	12.8%
4	11.7%
5	21.0%
6	31.4%
7 or More	10.7%

TABLE 9

Number of Extra-Curricular Assignments
Carried by Teachers

Number of Extra-Curricular Assignments	Percentage of Teachers
0	20.6%
1	26.4%
2	23.8%
3	13.4%
4	9.0%
5 or More	6.8%

TABLE 10

Extent to Which Various Factors Related to Student Activities Affect Achievement

Item	No Problem	Slight Problem	Moderate Problem	Serious Problem
Travel Time for Student Activities	4%	4%	44%	48%
Interruption of the School Day	4%	28%	16%	52%
Time out of Classroom	0%	36%	20%	44%
Length of Activity Seasons	16%	20%	40%	24%
Number of activities in Which Students are Involved	16%	16%	32%	36%
Teacher's Absences From Classroom	8%	20%	52%	20%

school day have been singled out for discussion, for all six items offered as potential problem areas, over 50% of respondents felt each constituted a "moderate" or "serious" problem. In addition, 40% of respondents volunteered comments regarding the length of the basketball season, with 28% of respondents stating outright that the season was too long and disruptive.

Other Influences on Student Achievement Related to School Size

In addition to all the factors which have been highlighted above, there are a variety of other considerations which must be taken into account in understanding the differences in achievement between students from small rural high schools and other students. Several studies have demonstrated that many of Utah's small rural schools are characterized by student populations who come from lower socio-economic status backgrounds. Socio-economic status is, in turn, related to academic achievement. Bryant, Glasier, Hansen, and Kirsch (1974) have this observation on the effects of socio-economic status on student achievement:

> "From the studies reviewed, the effect of socio-economic status (SES) cannot be over emphasized. Almost all the major studies reviewed contain some kind of SES measure and concluded that SES alone would account for between 10% and 25% of the variance in academic scores. Education of parents, occupation of parents, and items in the home where found to be the most commonly used measures of SES."

Thus, the attitudes toward education and the degree to which education is valued may well be different for students from the rural areas of the state who attend small schools. The point here is that these home and environmental influences probably act in concert with the other factors outlined in this report in impacting student achievement. No one of these factors in isolation is sufficient to explain the school size/achievement relationships which have been reviewed here, but taken in total, we begin to get a coherent picture of the factors which are operative and some notions as to what might be done to address the issue.

FINDINGS: SECTION III

ABILITY TO IMPLEMENT NEW PROGRAM OF STUDY AND HIGH SCHOOL GRADUATION REQUIREMENTS

This section presents the findings of the Survey of Principals of Small Utah High Schools as it pertains to the ability of these schools to implement the new State Board policy regarding programs of study and high school graduation requirements.

Questions concerning a school's ability to provide certain course options were structured to address the timeline specified in the State Board policy. Thus, the question was asked, "Does your school currently offer, or will it be able to offer "X" class by 1988 (yes or no)?" As a result, it is impossible to discriminate between current course offerings and those which are expected to be provided by 1988. Although an analysis of the responses seems to indicate that survey participants responded in terms of current course offerings, for the purposes of this report the most conservative position has been taken. Thus, the figures reported are taken to be respondents' estimates regarding whether or not a given course will be offered in their schools by 1988.

Results by Subject Area

English. Regarding the ability of small schools to offer English courses, 100% of the respondents stated that by 1988 their schools would be able to offer four full-year courses in English. The graduation requirements in the English area call for three units of English plus an extra unit for college-bound students. Thus, it appears that small schools will be able to offer sufficient courses in this area to meet requirements without difficulty.

However, the substance of English courses will be significantly changed as a result of the new core curriculum objectives. The fact that enough English classes will be offered by these schools may not ensure that content changes in those classes will be just as easily adopted.

Math. Elementary Algebra is the only math course expected to be offered by 100% of the schools. Geometry will be taught in 88% of the schools with Intermediate Algebra offered in 84% of the schools and Trigonometry offered in 68% of the schools. Applied Math in Living is expected to be offered by 84% of the schools by 1988. In the higher math areas, Advanced Algebra (24%), Analytic Geometry (32%), and Calculus (44%) are projected to be the least available math courses in small schools.

Since graduation requirements include two units in math plus an extra unit for college-bound students, depending on school-specific offerings, college-bound students in small schools may experience some difficulties as they seek to meet high school graduation and college entrance requirements.

All survey respondents reported that their schools offered enough math classes to meet the new high school graduation requirements (the school with the fewest math offerings reported it would be able to offer three separate courses). However, college-bound students in some of the small schools may be unable to take a traditional college-preparation sequence and most will find it impossible to take higher-level math courses such as Calculus.

Social Science. Of the three classes required by the new program of studies (i.e. World Cultural Geography, World Civilizations, and U. S. Studies) World Civilizations was reported as the only class which would be offered in 100% of the schools. U. S. Studies followed closely with all but two of the schools surveyed (92%) able to offer the class by 1988. World Geography will be taught in 84% of the schools.

After completing the three required classes (which equal 2.0 units of credit) all students must take one additional unit of social studies to meet the new graduation requirements. Among the optional courses, only American Problems (92%) is likely to be offered by small schools. Next highest would be Economics, with 48% of the respondents stating that their school would be able to offer this course by 1988 (at least one of the reporting schools alternates its Economics offering with Law Related Education, so each course would only be available every other year). According to respondents, the courses least likely to be offered will be Advanced Placement courses, with A.P. American History offered in five of the schools (20%) and A.P. European History offered in only 2 schools (8%). It appears likely that small schools will face at least some difficulties in meeting the high school graduation requirements in this area.

Science. All respondents reported that their schools would be able to offer a full unit of Biology by 1988. This meets one of the two science units required by the new high school graduation standards (one in biological science, one in physical science). Somewhat fewer schools (88%) will be able to offer Chemistry, and only (84%) of the reporting schools will offer Physics. Although not all schools which offer Chemistry will be able to offer Physics, it appears that in several of the small schools these two courses alternate by year.

Two new courses introduced as options in meeting the science requirements of the state program of study may create some difficulty for small schools. According to respondents, one out of every five schools (20%) will not be able to offer Applied Physical-Earth Science by 1988. The situation with respect to Applied Biological-Earth Science appears even worse, with nearly 40% of respondents stating that their schools will not be able to offer the course by 1988.

Although all 25 schools in the survey reported that they would be able to offer sufficient classes to meet the two-unit requirement for high school graduation, two of the schools (8%) will be unable to provide the third unit in science which is recommended for admission into the state's major universities. Thus, college-bound students from these schools could be seriously disadvantaged in their bid for acceptance by these institutions.

Overall the more important issue concerning science offerings has to do with scheduling. Many of these small schools (28% in this survey) are only able to offer classes such as Chemistry and Physics in an alternating-year schedule. As a result, it is imperative that college-bound students receive academic counseling early in their high school experience, in order to appropriately schedule their coursework over several years.

Healthy Lifestyles. New requirements in this area call for 2.0 units for all students including a half-unit of Consumer Health Education, a half-unit in Fitness and Participation Skills, and a final half-unit in Fitness for Life. According to survey respondents, almost all the schools (96%) will be able to meet the health education requirement, with somewhat fewer schools (88% and 84% respectively) able to offer the two other courses.

After students have completed the 1.5 units of required courses, the remaining half-unit can be earned through a choice between two classes (Individualized Lifetime Activities and Advanced Lifetime Activities Specialization). It appears that the provision of these last two classes will pose a significant problem for the schools included in this survey, with 36% reporting that they will be unable to offer the former and 84% unable to offer the latter class.

Information Technology. As a newly added part of the state program of study, by 1988 all students will be required to complete a half-unit in

Information Technology. Even though this is a new requirement, a significant majority (92%) of respondents stated that their schools would be able to meet the core requirement in this area by 1988.

Vocational Education. Another addition to the state's required core curriculum, a vocational education class (1 unit), will be required of all students. It is anticipated that this class will focus on the development of personal and job entry skills, along with some orientation to vocational options. Ninety-two percent of respondents indicated that their schools would be able to offer a course along the lines described above.

The Arts. Of all the new additions to the core, implementation of the Arts requirement will present the greatest difficulty for small schools. The new state policy requires all students to complete 1.5 units in the Arts (defined as Art, Dance, Theater/Drama, or Music). The survey identified course options which would meet core curriculum requirements. These course options include 13 classes in the visual arts, three in dance, two in theater/drama, and 5 in music. Of these 23 possible course offerings, only 4 are expected to be offered in 50 percent or more of the small schools surveyed. They are: General Crafts (52%), Beginning Theater Arts (60%), Chorus (56%), and Band (72%).

A considerable problem in the Visual Arts area is the fact that less than half of the sample schools (40%) will be able to offer Art Foundations II, considered a prerequisite for many of the other Arts courses, (especially in visual arts).

Dance courses will likely be the least available of the Arts options in the small schools. Only 24% of the respondents expect to offer Beginning Dance, one school (4%) will offer Intermediate Dance, and only two schools (8%) offer Advanced Dance as part of the curriculum. Two of the principals

responding to the survey reported that their only dance offerings were incorporated into the Physical Education curriculum.

However, simply looking at the percentage of schools which do or do not offer a certain art course can be misleading. More to the point is the number of schools unable to offer a sufficient number of classes in the entire core area to meet minimum requirements. Further analysis of the survey data revealed that 28% of the responding schools will not be able to offer sufficient classes in the Arts area to address the 1.5 unit requirement without having students take the same class two or more times. One school principal reported that his school will be totally unable to offer any art classes given present staffing patterns.

Program of Study Clusters

Beyond the core classes all students are supposed to select courses (for a total of 9.0 units of credit) as part of the high school graduation requirements. For organization purposes, courses have been grouped into "clusters" to address a particular area of student focus. These are: (1) a Technical/Vocational/Job Entry Cluster, (2) a College Entry Cluster, and (3) a High Interest Cluster. It is important to stress that clusters are not mutually exclusive and do not create an either/or choice for the students. Thus, selection of a cluster does not constitute "tracking".

As part of the survey, respondents were asked about their schools' ability to provide students with sufficient courses for completion of any cluster that a student might select. Following is a presentation of the findings in this area:

Vocational/Technical/Job Entry Cluster. Within this cluster students may select one of three focus areas, with differing requirements. The first of the three focus areas is the technical area, which specifies four required

units of technical training (e.g. Principles of Technology) plus five units of electives drawn from any available offerings. The required technical courses should be available in 72% of the schools.

The second of the focus areas is the Advanced Vocational Training area. This area includes course offerings such as Auto Mechanics, Carpentry, Welding, Business Education, etc. and requires the completion of 5 units of specialized coursework plus 4 units of electives. Although many of these courses have been part of the traditional vocational curriculum, only (52%) percent of respondents felt their schools would be able to offer sufficient courses to meet these requirements.

In the third focus area, Job Entry Training, students fill four units of electives and select 5 units from such options as cooperative and apprenticeship programs, and short-term training programs which train students for entry-level work (e.g. grocery checking, hotel/motel maid, nurse's aide, etc.). Of the 25 schools in our sample, nearly three-fourths of the respondents (72%) stated that their schools would not be able to offer this type of training.

College Entry Cluster. Students anticipating enrollment at colleges or universities need to meet increased unit requirements in English, Math, and Science above those expected of all students completing the core. The ability of small schools to meet these added requirements has already been noted in the previous section by subject area. However, in addition to these upgraded requirements, students in the college-preparatory sequence need to take 2 units in one foreign language plus 4 other units of electives. With respect to the foreign language requirement, 40% of respondents stated that their schools would not be able to offer the required language courses by 1988.

Since the foreign language requirement coincides with one of the admission requirements of the principal state university, students from these small schools wishing to attend the University of Utah will be at a major disadvantage.

High Interest Cluster. The least structured or restrictive of all the clusters, the "high interest" area merely requires completion of 9.0 units of classes chosen by the student. In spite of the broad range of options such a cluster ostensibly creates, in reality, the economics of small schools seriously restrict the range of available classes. Fully 40% of respondents reported that their schools might not be able to offer sufficient courses to make up 9.0 units of electives. This figure, however, is somewhat misleading in that courses required in one area can be counted as electives in other areas.

In all probability, students should be able to find enough classes. The problem is that the type of classes available may be of limited interest or applicability to the student. The nature of academic demand which available courses may entail may also be higher than students might otherwise prefer. This, however, may not be altogether bad.

CONCLUSIONS

The following conclusions seem warranted after an analysis of findings in three general areas including academic performance in small schools; factors which may be related to academic performance of schools; and the ability of small schools to implement the state's new graduation requirements.

Conclusions Based on an Examination of Academic Performance in Small Schools

- Students in Utah's small rural high schools generally perform at somewhat lower levels of achievement in the academic basic skills than do students in larger schools. These performance differences in academic basic skills are not pronounced for most areas, but for the areas of reading comprehension and math computation students from the state's smaller high schools clearly perform at lower levels than other students.

- Students from the state's smallest schools also tend to score lower than students from larger schools in a variety of non-cognitive areas such as academic self-concept, peer relations, independent development, and career awareness. Conversely, students from smaller schools have higher levels of participation in extra-curricular activities and also report higher enjoyment of school than do students in larger schools.

- On the American College Testing Program (ACT) examinations, there is a clear pattern which shows students from smaller graduating classes in the state scoring at significantly lower levels than students from larger graduating classes. This trend is true for each of the subject areas measured by the ACT including English, mathematics, social studies, natural science and the composite score. The differences are least pronounced for natural science and largest for mathematics. Another noteworthy conclusion, based on the ACT, is the observation that students from Utah's smallest graduating classes score lower than similar students in the national comparison group.

Conclusions Based on Analysis of Factors Related to School Size Which May Influence Academic Performance

- During the 1984 school year, students from the state's smallest high schools clearly took fewer classes in intermediate and advanced mathematics than did other students. These differences were most pronounced for Algebra II, Geometry, and Trigonometry. Conversely, areas such as Physics, Chemistry, and Computer Science, were characterized by higher levels of enrollment for students in smaller schools.

- Results from Utah's State Assessment Program demonstrate rather clearly that enrollment in intermediate and higher level mathematics courses has a profound effect on mathematics achievement. However, fewer students from small schools tend to enroll in these classes.

- Far greater percentages of students from the state's small high schools describe their high school program of studies as "general" than is the case for the state's larger schools. This suggests a much less focused program of studies for these students than is true of students in the larger schools.

- A majority of rural teachers are currently teaching exclusively in their areas of academic preparation. However, one-fourth of the principals commented that the situation is tenuous and can change from year to year as a result of teacher turnover.

- In all the schools surveyed at least some teachers are teaching classes which they are academically not prepared to teach. In more than half of the small schools surveyed this constitutes a significant problem, with a third or more of the faculty teaching in areas for which they have no academic major, minor or equivalent.

- A majority of small school teachers are carrying what would be considered an excessive daily preparation load (more than four daily preparations).

- Although one out of every five teachers in rural schools do not have an extra-curricular assignment, a substantial number (nearly a third) of teachers in small schools are assigned to supervise a significant number of extra-curricular activities (3 or more) in addition to heavy classroom preparation loads.

- In the judgement of small school principals, the amount of travel time required for student activities represents a substantial problem which affects the level of student achievement at their schools.

- Interruptions of the school day, time-out-of-class, length of activity seasons, teachers' absences from the classroom (as a result of extra-curricular assignments) and the number of activities in which students are involved are seen as at least moderately negative influences upon student achievement in small schools.

- Yet another factor which may influence academic performance of students from small rural schools is socio-economic status. In both Utah and the nation as a whole, students from smaller rural high schools often come from lower socio-economic status backgrounds than students from the state's larger schools. This factor may well influence attitudes toward education and the degree to which it is valued.

Conclusions Related to the Ability of Small Schools to Implement the New Program of Study and High School Graduation Requirements

- With a few exceptions, most notably in the Arts, it appears that small schools will generally be able to offer enough classes in each subject in order to meet minimum graduation requirements. However, the fact that small schools may be able to provide sufficient class offerings does not necessarily mean that these schools will be able to meet the changes in course content resulting from implementation of the core curriculum without a significant level of assistance from the state.

- College-bound students may experience at least moderate difficulties in taking traditional college-preparation course work, especially in math.

- Vocationally-focused students, especially those seeking job-entry training, may experience considerable difficulties with respect to availability of specialty training programs.

- Assuming that Advanced Placement course offerings in other areas follow the same pattern noted for the social sciences, it is clear that options available to academically-gifted students (such as A.P. classes) are limited in some small schools.

- Careful scheduling of course work appears to be an important issue for small schools. Many of these schools are only able to offer certain courses (especially in the Science and Social Studies areas) in an alternating-year schedule. As a result, the need for academic counseling and course scheduling early in a students' high school career is particularly important, especially for college-bound students.

- Because of limited course offerings in particular areas of importance to college-bound students (e.g. higher-level math courses and foreign languages), students in small schools may be at a considerable disadvantage, when compared to their urban counterparts, in their ability to perform well on the ACT and in being admitted into the state's universities.

FINAL COMMENTS

It was the purpose of this report to take a closer look at "what is" with respect to student performance and factors which may influence performance in the state's small schools. "What should be" is, of necessity, a subject for thoughtful discussion among a variety of critical participants -- educators, board members (at the state and local levels), school patrons (parents and students), and other community leaders.

The findings of this report point to several areas which must be addressed in our small schools -- lower achievement on standardized tests, limited course offerings, over-burdened teachers, and competing demands. The limited availability of financial resources clearly compounds the problems which have been presented.

On the positive side, the commitment of dedicated educators to create the best possible educational environment in the face of limited resources is unquestioned. The authors of this study have encountered numerous examples of creative efforts on the part of rural teachers and administrators to enhance student learning and achievement. As was stated in the introduction to this paper, State Board support for continued experimentation with creative approaches to education and the allocation of additional financial and technical resources will be a critical element in turning the tide in favor of the students in Utah's smallest schools.

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